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EXAMINER

LEAVITT, MARIA GOMEZ

ART UNIT	PAPER NUMBER
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1633

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,431

Applicant(s)

BUCHWALD, ARND

Examiner

Maria Leavitt

Art Unit

1633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Applicant's election **without traverse** of Group II (Claims 8-12) in the reply filed on 07-01-2007 is acknowledged. Claims 1-7 and 14 have been canceled and claims 8-13 have been amended by Applicants amendment filed on 07-01-2007.

Therefore claims 8-13 are currently being examined to which the following grounds of rejection apply.

Specification

The disclosure is objected to because of the following informalities:

The term "appurtenant" is misspelled at page 6, line 12; page 7, line 33 and page 9, line 9. Appropriate correction is required.

The term "neointimalproliferation" is misspelled at page 9, line 8. Appropriate correction is required.

At page 17, line 17; the term "respectively" is not properly placed within the grammar of the sentence. Appropriate correction is required.

At page 12, lines 21-32, there is one incomprehensible sentence that should be broken into several sentences to make the text clear. Appropriate correction is required.

At page 17, lines 22-23, the as filed specification refers to Fig. 4 for description of minimal lumen area being larger and the neointima area being smaller. However, these data is disclosed in Fig. 3 and not in Fig.4. Appropriate correction is required.

Claim Rejections - 35 USC § 112 (second paragraph)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the term "prophylaxis" and the phrase "preventing restenosis caused by a balloon catheter treatment of coronary blood vessels". The term "prevention" is used to describe "the act of going, or state of being, before" and the term "prophylaxis" is defined as "prevention of a disease, preventive treatment" (Webster's Seventh New Collegiate Dictionary). Claim 8 also recites "inhibition of restenosis". Thus, it is unclear how one can inhibit a medical condition that is already present i.e., restenosis by preventing said condition from occurring.

Claim Rejections - 35 USC § 112- First paragraph-Scope of enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 8-13 are rejected under 35 U.S.C. 112, first paragraph, because the specification is enabling only for claims limited to:

A method to prevent angioplasty induced restenosis by reducing injured-induced neointima formation, which method comprises providing a patient in need of treatment for

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restenosis intra-arterial administration of an effective amount of a vector comprising a gene encoding the VEGF receptor operably linked to the CMV promoter, at the site of injury, at the time of angioplasty.

The specification does not reasonably provide enablement for claims directed to a method prevention of vascular restenosis caused by a balloon catheter treatment by providing an effective quantity of a VEGF receptor gene or gene product by any route of administration. Additionally, the specification does not provide an enabling disclosure for treatment of an artery with a pre-existing condition of restenosis.

The specification does not enable any person skilled in the art to which it pertains or with which it is most nearly connected, to use the invention commensurate in scope with this claim. Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 8 USPQ2d 1400 (CA FC 1988). *Wands* states at page 1404,

“Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in Ex parte Forman. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.”

MPEP § 2164.04 states: “[W]hile the analysis and conclusion of a lack of enablement are based on the factors discussed in MPEP § 2164.01(a) and the evidence as a whole, it is not necessary to discuss each factor in the written enablement rejection.”

The claims, when given the broadest possible interpretation, encompass a method for preventing and inhibiting vascular restenosis (e.g., prevent re-blockage of the coronary arteries by inhibiting smooth muscle cell proliferation, inhibiting release of numerous vasoactive,

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thrombogenic and mitogenic factors such as PDGF in neointima) after angioplasty by administering by any route a VEGF receptor gene or gene product resulting. Therefore, the claims encompass an undefined genus of deliveries including: parenterally, e.g., intravenously; directly to the target site, e.g., intradermal, dermal, intramuscular delivery to an internal or external target site or by catheter to a site in an artery; intraperitoneal, e.g., oral, nasal administration; intracerebral; intraocular. Moreover, the claims can be broadly interpreted to include viral and non-viral, DNA delivery to prevent an inhibit restenosis, including a genus of unspecified variants of gene transfer vectors for viral gene delivery such as anyherpesviruses, papillomaviruses, papovaviruses, hepatitis viruses, retroviruses, hepadna viruses, pox viruses. Though the as-filed specification provides sufficient guidance for a significant reduction in neointima formation and enhancement of lumen area in blood vessels dissected from minipigs that were treated at the site of restenosis with a naked DNA expressing the VEGF receptor, the specification does not provide an enabling disclosure to claims directed to the method as broadly claimed. Thereby, specific issues including administration of a VEGF receptor gene or gene product by any route of administration and prevention rather than treatment of vascular restenosis have to be examined and considered for patentability regarding the broadly claimed methods.

In relation to administration of a VEGF receptor gene, the specification teaches transient transfection of the VEGF receptor gene in the affected regions by means of transiently transfecting cells with an expression vector which contains the gene encoding VEGF receptor contributing to the regeneration and regulation of neoformation of endothelial cells (p. 6, lines 19-30; p. 10, 11-25). Specifically, the instant invention exemplifies initial coronary angioplasty of 22 minipigs that were immediately treated after balloon-injured minipig arteries with a

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catheter comprising two rows of five apertures for administration of a DNA encoding the VEGF receptor e.g., the kinase insert domain-containing receptor/fetal liver kinase-1 (KDR/flk-1) operably linked to the CMV promoter (pp. 16-17). The specification discloses that after 2, 4, 7 or 28 days the hearts were removed, fixed by perfusion and the blood vessels were dissected for morphological analysis. Results indicated a significant reduction in the neointimal area by half in relation to the control vessels e.g., pcDNA 3 LacZ treated vessels (p. 17, lines 18-29). The specification is silent about any other routes of administration for a DNA comprising the VEGF gene for a therapeutic effect other than at the site of angioplasty, at the time of angioplasty. Additionally the specification does not disclose administration of any VEGF receptor protein itself. Moreover, the specification merely teaches treatment of restenosis by reduction of neointima formation after coronary induced angioplasty damage and not treatment of an artery with pre-existing restenosis.

In relation to administration of a plasmid comprising a gene encoding the VEGF receptor at any location, by any route of administration for safe and efficient expression of said gene, other than at the site of angioplasty, the art teaches that non-viral gene therapy have to overcome a number of specific systemic and intracellular barriers for appropriate gene expression including naked DNA digestion by bloodstream nucleases (Lechardeur et al., Gene Ther. 6:482-497, 1999). In relation to the use of viral delivery vectors, specific vectors are used to correct different types of deficiencies and exhibit different tropisms. For example, retroviral vectors are extremely efficient gene delivery vehicles that cause no detectable harm as they enter their target cell. Additionally, gene transfer by retrovirus occurs only in cells that are actively replicating at the time of infection. However, retroviruses have risks, as insertion of retroviral genes into the

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host genome may occur at random locations (Sandhu et al., 1997, Human Gene Therapy, p. 309, last paragraph bridging to p. 310, paragraph 1). In contrast, adenoviruses are used for localized *in vivo* treatment because avoid the risk associated with permanently altering the host cell genotype or promoting insertional mutagenesis. Additionally, they enter into most or all cell types, also infecting stationary cell. However, the immune reaction to adenovirus is potent and the unintegrated DNA does not persist overlong periods of time in a cell population, if the virus does not replicate it is diluted out with each cell division, thus adenovirus-mediated therapy is at appropriate for therapies requiring "short term" expression (Gunzburg et al., Molecular Medicine Today, 1995, p. 413, col. 1, paragraph 1). In relation to viral tropism, adenovirus, for example, exhibit primarily liver tropism so intravenous administration of a vector will lead to acumulation in the liver. To will, Wilson et al. (Adv. Drug Deliv. Rev. 46:205-209; 2001) states: "When adenovirus is directly infused into the blood, it is highly hepatropic, targeting essentially only hepatocytes" (first paragraph p. 206); further noting: "the efficiency with which adenoviruses transfer and express recombinant genes in liver is orders of magnitude higher than that achieved with other vector systems" (first column, p. 208). Therefore the selection of the appropriate vector for gene therapy is a critical limitation that must be adequately addressed. This is important in light of the sizeable number of non-viral vectors embraced by the claims of the instant application, that can include simple plasmids, that exhibit low transduction of tissues and whose expression profile is known to be transient. It should further be noted that expression of any gene of interest encoded by a simple nucleic acid, such as a plasmid (as encompassed by claim 8), would be transient and would not allow sustained suppression of a viral infection in a subject. Applicant corroborates the lack of predictability of nonviral gene therapy being

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administered at any site by disclosing that “the local use of the protein or the local overexpression of the VEGF-encoding DNA, also lead to an increase, in the blood, of the circulating concentration of VEGF, which does not occur, or does not occur in detectable concentrations, physiologically” (p. 4, lines 4-10; p. 5, lines 28-29; p. 10, lines 29-31) . Hence, applicants support the criticality of administering naked DNA at the site of angioplasty for a therapeutic effect and does not teach any mechanism that will allow an expression vector, which comprising a sequence encoding the VEGF receptor gene to overcome these various barriers against naked DNA when administered at a distant site from the target cell.

With regards to administration of VEGF receptor as a therapeutic protein, issues concerning safety of a therapeutic protein, dosing, clearance and efficacy of the product, including preclinical evaluation for toxicity and immunogenicity are important considerations. Toxicity with proteins often presents differently that with small-molecule pharmaceutical drugs, requiring studies that specifically examine safety questions that may arise during the pre-market and post-market (Scientific Considerations Related to Developing Follow-On Protein Products, 2004, p. 4, paragraph 1). Further, immunogenic responses in patients can be triggered by large-molecules products, product-related or process-related impurities raising unwanted antibodies. Additionally, the way in which unwanted immunogenicity may present in different patients is unpredictable and varied, even with identical amino acid sequences, immunogenicity to the product can vary dramatically (Scientific Considerations Related to Developing Follow-On Protein Products, 2004, p. 5, paragraph 1). Thus preclinical evaluation for toxicity and immunogenicity of a therapeutic protein should precede the earlier phase of clinical testing. In the earlier phase of clinical testing, it is also important to assess the half-life and clearance of the

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protein as the terminal elimination half-life of related products can vary drastically. For example, six companies manufacturing FDA-approved versions of human growth hormone, with the same number of amino acid and very similar molecular weights, presented terminal half-life from 1.75 to 10 hours. Thus, such large variations can impact the effectiveness of the product and the body's immune response to it (Scientific Considerations Related to Developing Follow-On Protein Products, 2004, p. 5, paragraph 1). Hence the risk of toxicity and immunogenicity should be assessed for each product and characterized for an appropriate therapeutic response. Further, the specification is silent about administration of soluble form of the VEGF receptor devoid of an intracellular tyrosine kinase domain as required for a therapeutic protein to locally bind the secreted VEGF and inhibit vascular restenosis around the site of angioplasty.

In relation to prevention of restenosis, the art clearly teaches the need for effective treatment of restenosis after angioplasty. For example, Rajagopal et al., (The American Journal of Medicine, 2003, pages 547-553) teaches that the hallmark of the restenosis is in injury of the blood vessel leading to the release of numerous vasoactive, thrombogenic and mitogenic factors (p. 547, col. 1). Additionally, the authors note that clinical restenosis partly depending on inhibition of smooth muscle cell proliferation also depends on native atherogenesis due to oxidative stress (p. 550, col. 1). However, the authors state that the focus on inhibition of neointimal proliferation after angioplasty has been the major impetus for therapeutic strategies to date (p. 550, col. 2). Hence the art clearly teaches prevention of restenosis after injured induced stenosis by inhibition of neointimal proliferation.

As set forth above by the nature of the invention, neither the prior art of record nor the as-filed specification provides sufficient guidance to enable a person skilled in the art to prevent and

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inhibit restenosis during and after angioplasty or preventing restenosis caused by a balloon catheter treatment of coronary blood vessels by any route of administration, using non-viral and unspecified variants of gene transfer vectors. Applicant has not provided sufficient guidance as to whether a gene encoding the VEGF receptor administered in a therapeutic effective amount in a location distant from the of coronary blood vessels will still be expected to reach that target or will remain locally at the site of administration using any type of viral vector or naked DNA. With respect to target delivery of a protein to a coronary blood vessel in a human, the art teaches the unpredictability of delivering said protein for an effective response due to dosing, clearance and efficacy of the product, which requires preclinical evaluation. Thus the specification as filed fails to provide particular guidance to resolve the known unpredictability in the art associated administration by any route for a therapeutic effect. The quantity of experimentation required to practice the methods as claimed would require the de novo determination of effective target sites, modes of delivery, safe administration of the vector DNA and VEGF receptor protein itself to target appropriate cells and/or tissues in a patient in need of treatment for restenosis after balloon catheter treatment of coronary blood vessels. As the result, given the unpredictability of the art and the lack of working example in the instant specification, particularly when taken with the lack of guidance in the specification, it would have required undue experimentation to practice the instant method to identify an enormous number of methods of routes of administration for preventing and inhibiting restenosis in a mammal by administration of an effective amount of a VEGF receptor or gene product as broadly claimed other arterial administration at the site of injury, at the time of angioplasty.

Claim Rejections - 35 USC § 102(e)

To the extent that the claim invention is drawn to a method for treatment of vascular restenosis by reducing injured-induced neointima formation, which method comprises providing a patient in need of treatment for restenosis an effective amount of a vector comprising a gene encoding the VEGF receptor, wherein the VEGF receptor gene is present in the form of encapsulated nanoparticle, the following rejections apply.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8- 13 are rejected under 435 U.S.C. 102(e) as being anticipated by Egashira K (US Publication No. US 2006/0234969).

Egashira K et al., teaches a method for therapy of restenosis within the wall of coronary vessels which results in response to angioplasty procedures and/or stent implantation (p. 1, [0003]-[0005]). Moreover, Egashira K et al., discloses that said method includes administering agents inhibiting VEGF, such as the soluble VEGF receptor, for inhibiting expression of VEGF and/or VEGF activity (p. 1, [0007] [0008]; p. 5, [0071]). In relation to the administration of said agents, Egashira K et al., teaches that administration can take place after angioplasty, coronary

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and/or peripheral angioplasty, and that the angioplasty procedure could involve any of the types of angioplasty (e.g. balloon, atherectomy, laser) employed either with or without a stent (p. 3, [0044]). Egashira K et al., teaches that restenosis occurs only as a result of the expanding neointimal mass (p.2, [0019]). Moreover, Egashira K et al., discloses that increased activity of ang-1 (e.g., an agent inducing vessel maturation)" without VEGF causes vessel maturation and stabilization, and therefore inhibits ongoing angiogenesis (see FIG. 1). Therefore, administration to the injured vessel wall of 1) an agent inhibiting VEGF (e.g., the soluble VEGF receptor) and 2) an agent inducing vessel maturation (e.g., ang-1) will reduce microangiogenesis and, thereby, will reduce neointimal development (see FIG. 2)" (col. 9 [0123]). Current claims 8, 9 and 11.

Further, Egashira K et al., teaches that treatment includes administration of vectors such as adenoviral vector(s) expressing the 1) soluble VEGF receptor transgene (p. 9, [0111]), which can be encapsulated into liposomes (p. 6, [0034]). It is noticed that the recombinant DNA plasmid vector pcDNA3.1/sf1t-1 (p. 6, [0033] [0034]) is the same vector used in the instant invention (Specification, p17 line 37 bridging to page 18, lines 1-3). Current claims 10 and 12.

Additionally, Egashira K et al., discloses that anti-angiogenic factors can be applied "directly to the wall of the injured vessel via either: 1. a balloon catheter that allows administration of the anti-angiogenic factor directly into the media and/or adventitia, or 2. a stent that has been deployed and which releases the factor into the vessel wall:(p. 5,[0067]). Current claim 13.

Thus Egashira K et al., teaches all the claimed limitations and anticipates Applicant's claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein et al., (US Pub.No. 2003/0191055) over Cleland et al., (2001, Journal of Controlled Release, pp 13-24) and Linn et al., (2003, Cell Transplantation, pp. 769-778).

Epstein et al., teaches a method for therapy and/or prevention of restenosis and/or atherosclerosis within the wall of coronary vessels which results in response to angioplasty procedures and/or stent implantation (p. 1, [0002]-[0005]). Moreover, Epstein K et al., discloses that said method includes administering agents inhibiting VEGF, such as the soluble VEGF receptor, for inhibiting expression of VEGF and/or VEGF activity (p. 1, [0009] [0010]; p. 5, [0071]). In relation to the administration of said agents, Epstein K et al., teaches that administration can take place after angioplasty, coronary and/or peripheral angioplasty, and that the angioplasty procedure could involve any of the types of angioplasty (e.g. balloon, atherectomy, laser) employed either with or without a stent (p. 3, [0044]). Epstein K et al., teaches that restenosis occurs only as a result of the expanding neointimal mass (p.2, [0019]). Further, Epstein K et al., teaches that treatment includes administration of the gene by a vector,

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e.g., plasmid or viral vector (p. 3, [0035]). Additionally, Epstein K et al., discloses that anti-angiogenic factors can be applied "directly to the wall of the injured vessel via either: 1. a balloon catheter that allows administration of the anti-angiogenic factor directly into the media and/or adventitia; or 2. a stent that has been deployed and which releases the factor into the vessel wall (p. 5, [0067]).

Epstein et al., does not specifically teach a method of administration for controlled release system in the form of microspheres.

However, at the time the invention was made, Cheland teaches the use of recombinant human vascular endothelial growth factor (rhVEGF) to promote neovascularization in regions of ischemia including coronary artery disease in a formulation of rhVEGF in PLG microspheres that would provide a continuous local delivery of intact protein. Moreover, Cheland discloses that rhVEGF systemic administration did not provide clinical benefit to patients. In contrast, the hVEGF in PLG microspheres increase local angiogenesis without unwanted systemic side effects (p. 14, col. 2; p. 21, col. 2, last paragraph). Similarly, Linn et al., discloses the use of polymeric material, e.g., poly DL-lactide-co-glycolide, PLGA microspheres for controlled release of hVEGF for induction of new vessels with controlled release of rhVEGF (p. 769, Abstract).

Thus in view of the benefits of enhancing rhVEGF delivery in rhVEGF PLG formulations over systemic administration to enhance angiogenesis of ischemic areas and for controlled release as taught by Cheland and Linn et al., it would have been obvious for one of ordinary skill in the art to modify the recombinant VEGF receptor gene or gene product as taught by Epstein K et al., with PLG microspheres in order to enhance delivery of the VEGF receptor gene or gene product in a patient in need of treatment for restenosis caused by a balloon catheter

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treatment of coronary blood vessels. The motivation to combine the references is the significant enhancement in local drug concentration with low systemic exposure and controlled release over time in microspheres formulations comprising the gene product. The manipulation of previously identified DNA fragments and cell transformation systems is within the ordinary level of skill in the art of molecular biology. Thus, one of ordinary skill in the art would have been motivated to deliver an effective quantity of a VEGF receptor gene product in microsphere formulations with a reasonable expectation of success, particularly since Cheland and Linn et al., have successfully enhanced the delivery of rhVEGF from PLGA microspheres.

Conclusion

Claims 8-13 are not allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Leavitt whose telephone number is 571-272-1085. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach, Ph.D can be reached on (571) 272-0739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1633; Central Fax No. (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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